PART SPEC

DESCRIPTION: INVERTER,SIC 241SF

SPECIFICATION: 11.5V~12.5V,,47KHZ,0 +50°C,BULK

SECTION : DISPLAY R&D

PAGE																					
REVISION																					
	02	02	02	02	-	02	02	02	02	-	-										
	01	01	01	01	01	01	01	01	01	01	01										
SHEET	1	2	3	4	5	6	7	8	9	10	11										

REVISION	01	02																		

DRAWN: MYUNG-SOO NA	7202	SAMSUNG	DOC. NO.: BN44-00025ACB REF. NO.:
CHECKED:		SAMSUNG ELECTRONICS CO.,LTD. (All Rights Reserved.)	TOTAL PAGE 11
APPROVED: BONG-KYEOM KIM	7196		SIZE: A4 PAGE: 1

KQA-2029 F4R0('1996.10.25)

PART SPEC

REV.	DATE	CONTENTS	DRAWN	APPROVED
01	99.10.11	initial release	M.S NA	B.K KIM
02	00.04.11	REVISION BY ECO NO BN0200000B4 *Changed PCB (from REV.0.0 to REV.1.0) *Changed OUTPUT CHARACTERISTICS *Changed PARTS LIST *Changed CIRCUIT	M.S NA	B.K KIM

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1.0 SCOPE

1.1 THIS DOCUMENT DEFINES FOR INVERTER, SIC241SF,11.5~12.5V,47KHz

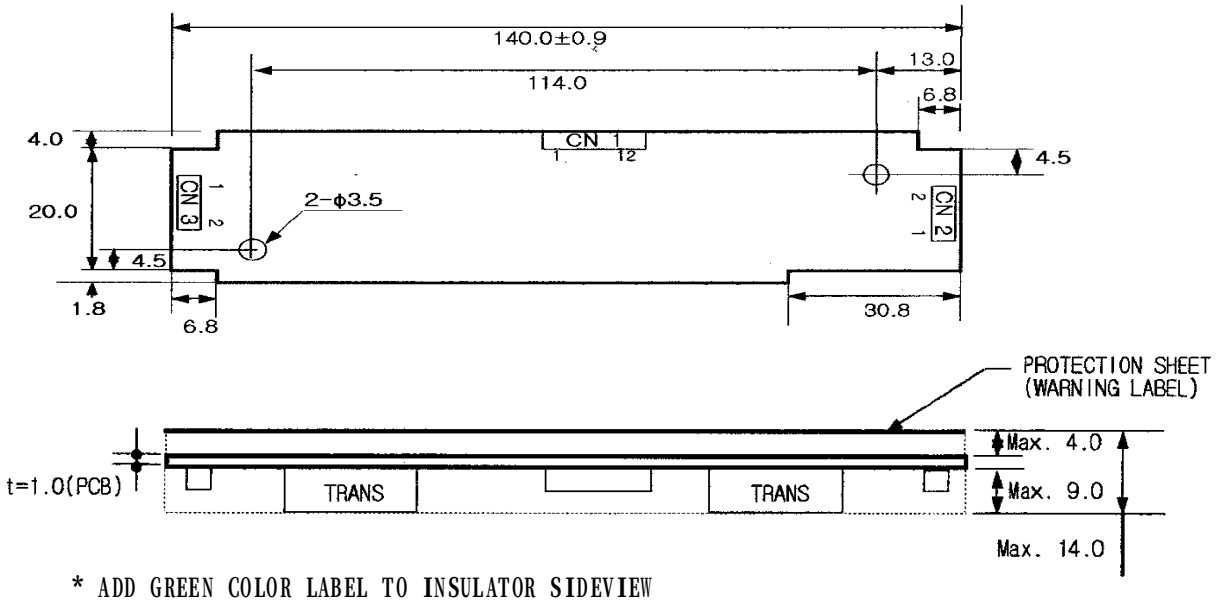
1.2 USAGE : BACKLIGHT 2 LAMP CCFL DRIVER INVERTER FOR TOSHIBA LCD

1.3 TYPE OF PACKAGE :

1.4 COATING :

2.0 RELATED DOCUMENTS

3.0 DIMENSIONS 02



* ADD GREEN COLOR LABEL TO INSULATOR SIDEVIEW

4.0 REQUIREMENTS

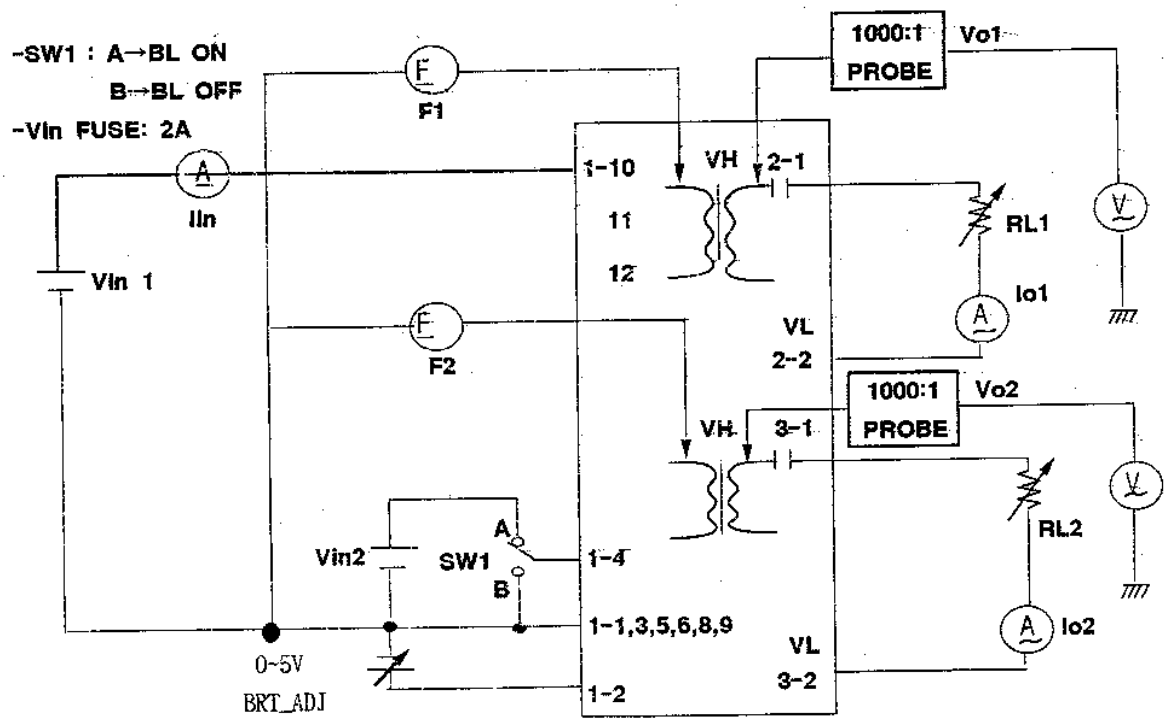
4.1 MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V_{in1}	input voltage1	11.5~12.5	V
V_{IN2}	input voltage2	5.0	V
Topr	operating temperature	0 +50	°C
Tstg	storage temperature	-20 +75	°C
Hop	operating/storage humidity	10~90	%RH

4.2 CONTROL SIGNAL

PIN NO.	SYMBOL	STATUS	ACTION	REMARKS
CN1 #4	BKLT-ON	HIGH	LAMP(CCFL)-ON	2.4~5.25V
		LOW	LAMP(CCFL)-OFF	0.8V MAX.

4.3 TEST CIRCUIT



4.4 INPUT/OUTPUT CHARACTERISTICS 02

ITEM	SYMBOL	CONDITION				SPECIFICATION			UNIT
		Vin1(V) (DC-IN)	Vin2(V)	BRT-ADJ	RL(kΩ)	MIN	TYP	MAX	
OUTPUT CURRENT	Io1(max)	11.5~12.5	5	0V	100±0.5	6.5	7.0	7.5	mArms
	Io1(min)	11.5~12.5	5	5V	100±0.5	0.5	1.5	2.5	
	Io2(max)	11.5~12.5	5	0V	100±0.5	6.5	7.0	7.5	
	Io2(min)	11.5~12.5	5	5V	100±0.5	0.5	1.5	2.5	
INPUT CURRENT	Iin	12	5	0V	100±0.5	0.5	0.8	1.2	ADC
FREQUENCY	F(1)	12	5	0V	100±0.5	40	47	54	kHz
FREQUENCY	F(2)	12	5	0V	100±0.5	40	47	54	kHz
DIMMING FREQUENCY (Ta=25°C)	FD	12	5	5	100±0.5	189	192	195	Hz

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5.0 FUNCTIONNAL PIN DESCRIPTION

5.1 CN1 CONNNECTOR 53261-1290(MOLEX)

PIN NO	SYMBOL	REMARK
1	GND	GND
2	BRT_ADJ	0 ~5V
3,5	GND	GND
4	BL ON/OFF	CCFL Drive SIGNAL(Active HIGHT)
6,8,9	GND	GND
7	5V	5V
10,11,12	DC-IN	DC INPUT Power(12V)

5.2 CN2 CONNECTOR:SM02(8.0)B-BHS-1-TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.3 CN3 CONNECTOR :SM03(8.0)B-BHS-1TB(JST)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

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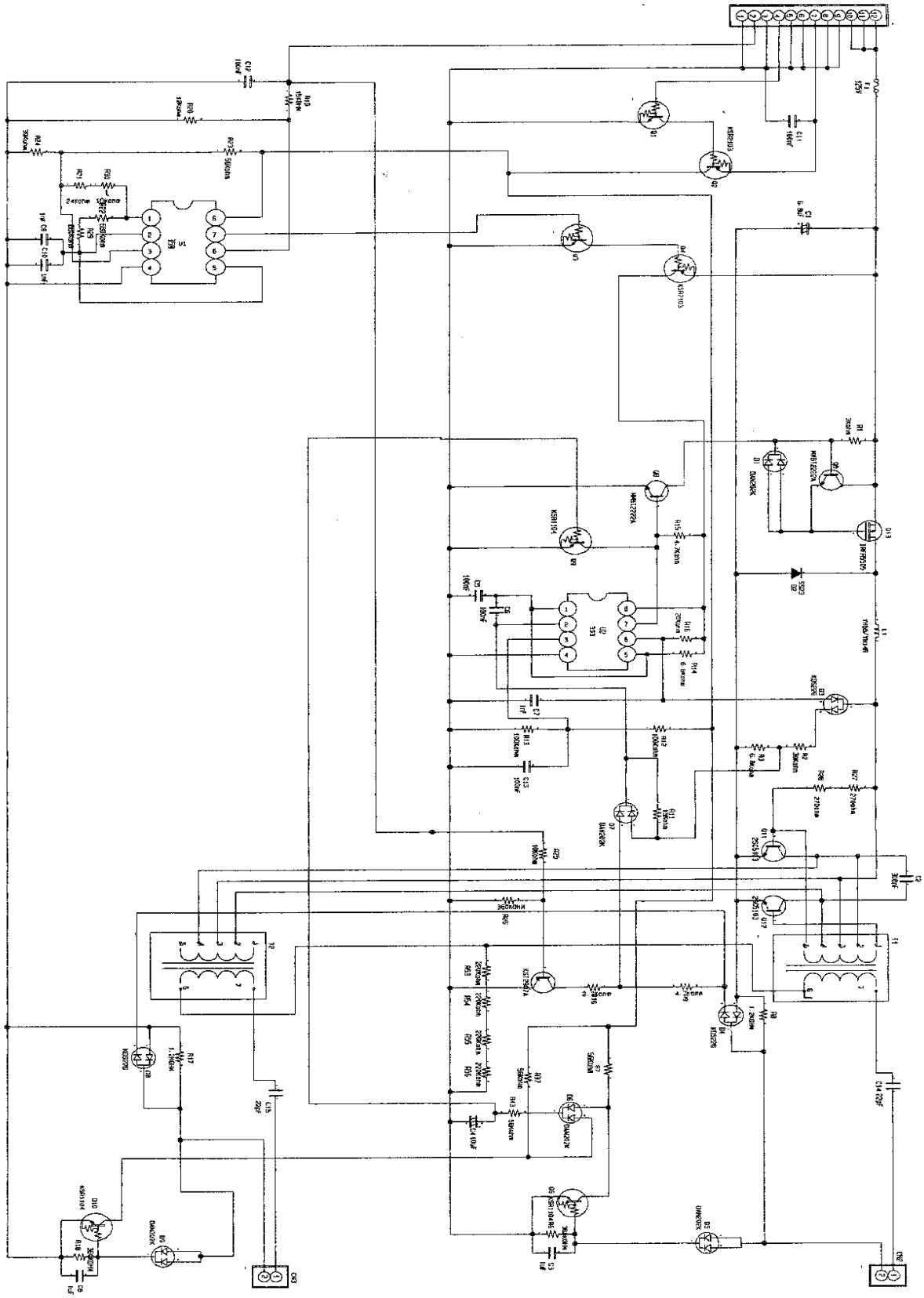
6.0 INTERNAL CIRCIUT DIRGRAM



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7.0 PARTS LIST 02

SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
U1	IC	KA358	SEC	BA10358	ROHM
	"	KIA358	KEC	LM358	T.I
U2	IC	KA393	SEC	BA10393	ROHM
	"	KIA393	KEC	LM393	T.I
Q1,3	TR	KRC103S	KEC	KSR1103	SEC
Q2,4	"	KRA103S	KEC	KSR2103	SEC
Q6,9,10	"	KRC104S	KEC	KSR1104	SEC
Q5,8	"	KST2222A	SEC	KTN2222A	KEC
Q7	"	KST2907A	SEC	KTN2907A	KEC
Q13	FET	IRFR5505	I.R		
Q11.12	TR	2SC5103	ROHM		
D1,5,6,7,9	DIODE	KDS184	KEC	DAN202K	ROHM
D2	DIODE	SS23	GI	SK23/SK24	PANJIT
D3,4,8	"	KDS226	KEC	EQUIVALENT	
C1	C-ELEC	6.8uF/25V	SANYO	EQUIVALENT	
C2	FILM	MPPS2A304K	SUNGHO		
C14,15	C-CERA	C4520CH3F220K	TDK	CF42CG220J 3000B	AVX
C5,6,11,12,13	"	CL21B104KBN	SEMCO	EQUIVALENT	
C7,9,10	"	CL21C102JBN	"		
C4	C-TANTAL	10uF/6.3V	"	"	
C3,8	C-CERA	CL21F105ZBN			
R30	VR	10K OHM	"	"	
R1	CHIP-R	RC2012J302	"	"	
R2	CHIP-R	RC2012J303	"	"	
R21	CHIP-R	RC2012J243	"	"	
R3,14	"	RC2012J682	"	"	
R7,23,37,43	"	RC2012J563	"	"	
R16	"	RC2012J203	"	"	
R10	"	RC2012J222	"	"	
R25	"	RC2012J103	"	"	

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PART SPEC

02 SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
R27,28	CHIP-R	RC3216J271	SEMCO	EQUIVALENT	
R8,17	"	RC3216J122	"	"	
R9,15	"	RC2012J472	"	"	
R12,13	"	RC2012J104	"	"	
R22,29	"	RC2012J684	"	"	
R24	"	RC2012J393	"	"	
R6,18,26	"	RC2012J364	"	"	
R11,19	"	RC2012J153	"	"	
R20	"	RC2012J123	"	"	
R53,54,55,56	"	RC3216J224	"	"	
T1,2	TRANS	TA001	DAISUNG	TA001	KYUNGIN
	"	TA001	NAMYANG	TA001	DAISHIN
L1	COIL	135B(85uH)	NAMYANG	135B(85uH)	KYUNGIN
		135B(85uH)	DAISHIN		
F1	FUSE	SSQ2	BEL	451002	LITTEL
CN1	CONNECTOR	53261-1290	MOLEX	12505WR-12A00	YEONHO
CN2,3	"	SM02(8.0)B-BHS	JST	20015WR-050208	YEONHO
PCB	PCB	SIC241SF REV1.0	YOUNGEUN	SIC241SF REV1.0	KIJOO
INSULATOR	INSULATOR	PC0.2T-SIC241SF	YOUIL		

8.0 RELIBILITY

NO	ITEM	SPECIFICATION	CONDITION AND METHOD
1	HIGH TEMPERATURE STORAGE TEST		TEMP.;70 °C DURATION: 500 hrs
2	LOW TEMPERATURE STORAGE TEST		TEMP.;40 °C DURATION: 500 hrs
3	HIGH TEMPERATURE HIGH HUMIDITY STORAGE TEST		TEMP.;40 °C ,HUMIDITY:95%RH DURATION: 500 hrs
4	HIGH TEMPERATURE HIGH HUMIDITY OPERATION TEST		TEMP.;40 °C ,HUMIDITY:95%RH DURATION: 1000 hrs
5	THERMAL SHOCK TEST		TEMP;-30 °C ↔ 70 °C, 250 CYCLE (30 MINUTE),(30 MINUTE)
6	VIBRATION TEST		AMPLITUDE;1.5mm,FEEQUENCY;10~55Hz,POSITION; TREE PERPENDICULAR PLANES,DURATION;1000 hrs
7	HIGH TEMPERATURE OPERATION TEST		TEMP;50 °C DURATION;72 hrs
8	LOW TEMPERATURE OPERATION TEST		TEMP; 0 °C DURATION;72 hrs

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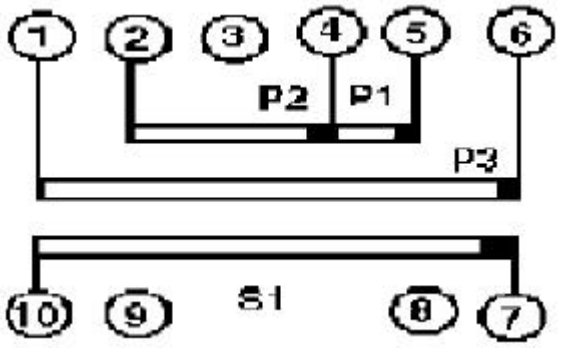
9.0 DETAIL SPECIFICATION FOR KEY PARTS

9.1 TRANS (TA001)

9.1.1 WINDING SPEC & ELECTRICAL CHARACTERISTICS



02

SYMBOL& WINDING	WIRE	TURNS	INDUCTANCE	CONDITION
P1 (#5-#4)	2UEW 0.25¢	9	43.7 uH ±15%	AT 1KHZ 1Vrms
P2 (#4-#2)	2UEW 0.25¢	9		
P3 (#6-#1)	2UEW 0.25¢	2	0.8 uH REF	
S1 (#7-#10)	2UEW 0.04¢	1620(270*6)	310mH±15%	

9.1.2 MATERIAL LIST (TA001)

NO.	COMPONENT	MANUFACTURE COMPONENT	NAME OF MATERIAL	MANUFACTURER OF MATERIAL	UL FILE NO.
1	CORE	SAM SUNG CORNING CO., LTD.	SL-2 EPS 16.4 m/m		
2	BOBBIN	JO KWANG ELECTRONICS CO., LTD	(94V-0) SB EE16 LCP UL	SUMITOMO CHEMICAL CO., LTD.	E 54705 (M)
3	WIRE	L.G CABLE & MACHINERY LTD.	2 UEW 0.04Ø (AWG #44)		E 84441 (S)
4		DONG YANG ELECTRONICS IND CO., LTD.	2 UEW 0.25Ø (AWG #30)		E 102761(S)
5	INSULATION TAPE	DUCK SUNG TAPE CO., LTD. (Cat No. DTS-204)	POLYESTER FILM TAPE 0.025 mm X 12.5 mm		E105147(S)
6	CORE FIXING TAPE		POLYESTER FILM TAPE 0.025 mm X 4.0 mm		
7	INSULATOR	SKC LTD	PETP FILM SR50(0.12mm)		E 74359(S)
8	WAX	MICRO WAX 180	MOBILOR ESSO CO., LTD.		

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9.2 DETAIL MATERIAL LIST FOR KEY PARTS (SAFETY)

SYMBOL	NAME	TYPE NO.	MANUFACURER	DESCRIPTION
F1	FUSE	451002	LITTLE FUSE INC	UL FILE NO:E10480 CSA FILE NO:LR29826
		SSQ2	BEL	UL FILE NO:E20624 CSA FILE NO:LR39772
PCB	PRINTED CIRCUIT BOARD	FR-4	KIJOO	UL FILE NO:E11136
			YOUNG EUN ELECTRO	UL FILE NO:E173507
CN1	CONNECTOR	53261-1290	MOLEX	NYLON 4/6 UL94V-0
		1205WR-12A00	YEUNHO	NYLON 4/6 UL94V-0
CN2	CONNECTOR	SM03(4.00-BHS	JST	PA-46 UL94V-0
		20015WR-050304	YEONHO	PA-46 UL94V-0
T1	TRANSFORMER	TA001	DAISUNG TELECOMMUNICATION	CLASS A (105°C)
			NAMYANG ELECTRONICS	CLASS A (105°C)
			KYUNGIN ELECTRONICS	CLASS A (105°C)
			DAISHINDENKEN	CLASS A (105°C)
	INSULATOR	PC	TEIJIN CHEMICALS	UL FILE NO:E50075(M)

10.0 PACKING REQUIREMENTS

BULK

PART SPEC

SAMSUNG P/N	VENDOR #1 P/N	VENDOR #2 P/N	VENDOR #3 P/N	VENDOR #4 P/N
BN44-00025A	SIC241SF			